

***FURNITURE
AND
CABINETMAKING
CURRICULUM FRAMEWORK***



This document was prepared by:

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INTRODUCTION

The Nevada CTE Curriculum Frameworks are a resource for Nevada's public and charter schools to design, implement, and assess their CTE programs and curriculum. The content standards identified in this document are listed as a model for the development of local district programs and curriculum. They represent rigorous and relevant expectations for student performance, knowledge, and skill attainment which have been validated by industry representatives.

The intent of this document is to provide a resource to districts as they develop and implement CTE programs and curricula.

This program ensures the following thresholds are met:

- The CTE course and course sequence teaches the knowledge and skills required by industry through applied learning methodology and, where appropriate, work-based learning experiences that prepare students for careers in high-wage, high-skill and/or high-demand fields. Regional and state economic development priorities shall play an important role in determining program approval. Some courses also provide instruction focused on personal development.
- The CTE course and course sequence includes leadership and employability skills as an integral part of the curriculum.
- The CTE course and course sequence are part of a rigorous program of study and include sufficient technical challenge to meet state and/or industry-standards.

The CTE program components include the following items:

- Program of Study
- State Skill Standards
- Employability Skills for Career Readiness Standards
- Career Technical Student Organizations (CTSO)
- Curriculum Framework
- CTE Assessments:
 - Workplace Readiness Skills Assessment
 - End-of-Program Technical Assessment
- Certificate of Skill Attainment
- CTE Endorsement on a High School Diploma
- CTE College Credit

**NEVADA DEPARTMENT OF EDUCATION
CURRICULUM FRAMEWORK FOR
FURNITURE AND CABINETMAKING**

PROGRAM TITLE:	FURNITURE AND CABINETMAKING
STATE SKILL STANDARDS:	FURNITURE AND CABINETMAKING
STANDARDS REFERENCE CODE:	FURNC
CAREER CLUSTER:	ARCHITECTURE & CONSTRUCTION
CAREER PATHWAY:	CONSTRUCTION
PROGRAM LENGTH:	3 LEVELS (L1, L2, L3C)
PROGRAM ASSESSMENTS: (GIVEN DURING L3C COURSE)	FURNITURE AND CABINETMAKING WORKPLACE READINESS SKILLS
CTSO:	SKILLSUSA
GRADE LEVEL:	9-12
AVAILABLE INDUSTRY CERTIFICATIONS/LICENSES PROVIDERS:	CAREER SAFE 10-HOUR - OSHA SP2 – SAFETY AND POLLUTION PREVENTION

PROGRAM PURPOSE

The purpose of this program is to prepare students for postsecondary education and employment in the Furniture and Cabinetmaking industry.

The program includes the following state standards:

- Nevada CTE Skill Standards: Furniture and Cabinetmaking
- Employability Skills for Career Readiness
- Nevada Academic Content Standards (alignment shown in the Nevada CTE Skill Standards):
 - Science (based on the Next Generation Science Standards)
 - English Language Arts (based on the Common Core State Standards)
 - Mathematics (based on the Common Core State Standards)
- Common Career Technical Core (alignment shown in the Nevada CTE Skill Standards)

CAREER CLUSTERS

The National Career Clusters™ Framework provides a vital structure for organizing and delivering quality CTE programs through learning and comprehensive programs of study (POS). In total, there are 16 Career Clusters in the National Career Clusters™ Framework, representing more than 79 Career Pathways to help students navigate their way to greater success in college and career. As an organizing tool for curriculum design and instruction, Career Clusters™ provide the essential knowledge and skills for the 16 Career Clusters™ and their Career Pathways.*

*Cite: National Association of State Directors of Career Technical Education Consortium. (2012). Retrieved from <http://www.careertech.org/career-clusters/glance/careerclusters.html>

PROGRAM OF STUDY

The program of study illustrates the sequence of academic and career and technical education coursework that is necessary for the student to successfully transition into postsecondary educational opportunities and employment in their chosen career path. (NAC 389.803)

PROGRAM STRUCTURE

The core course sequencing provided in the following table serves as a guide to schools for their programs of study. Each course is listed in the order in which it should be taught and has a designated level. Complete program sequences are essential for the successful delivery of all state standards in each program area.

FURNITURE AND CABINETMAKING	
Core Course Sequence	
FURNITURE AND CABINETMAKING	LEVEL
Furniture and Cabinetmaking I	L1
Furniture and Cabinetmaking II	L2
Furniture and Cabinetmaking III	L3C
Furniture and Cabinetmaking Advanced Studies*	AS

*Complementary Courses

STATE SKILL STANDARDS

The state skill standards are designed to clearly state what the student should know and be able to do upon completion of an advanced high school career and technical education (CTE) program. The standards are designed for the student to complete all standards through their completion of a program of study. The standards are designed to prepare the student for the end-of-program technical assessment directly aligned to the standards. (Paragraph (a) of Subsection 1 of NAC 389.800)

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS

Employability skills, often referred to as “soft skills”, have for many years been a recognizable component of the standards and curriculum in career and technical education programs. The twenty-one standards are organized into three areas: (1) Personal Qualities and People Skills; (2) Professional Knowledge and Skills; and (3) Technology Knowledge and Skills. The standards are designed to ensure students graduate high school properly prepared with skills employers prioritize as the most important. Instruction on all twenty-one standards must be part of each course of the CTE program. (Paragraph (d) of Subsection 1 of NAC 389.800)

CURRICULUM FRAMEWORK

The Nevada CTE Curriculum Frameworks are organized utilizing the recommended course sequencing listed in the Program of Study and the CTE Course Catalog. The framework identifies the recommended content standards, performance standards, and performance indicators that should be taught in each course.

CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOs)

To further the development of leadership and technical skills, students must have opportunities to participate in one or more of the Career and Technical Student Organizations (CTSOs). CTSOs develop character, citizenship, and the technical, leadership and teamwork skills essential for the workforce and their further education. Their activities are considered a part of the instructional day when they are directly related to the competencies and objectives in the course. (Paragraph (a) of Subsection 3 of NAC 389.800)

WORKPLACE READINESS SKILLS ASSESSMENT

The Workplace Readiness Skills Assessment has been developed to align with the Nevada CTE Employability Skills for Career Readiness Standards. This assessment provides a measurement of student employability skills attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified by the letter “C”.

(e.g., Level = L3C) (Paragraph (d) of Subsection 1 of NAC 389.800)

END-OF-PROGRAM TECHNICAL ASSESSMENT

An end-of-program technical assessment has been developed to align with the Nevada CTE Skill Standards for this program. This assessment provides a measurement of student technical skill attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified by the letter “C”. (e.g., Level = L3C)

(Paragraph (e) of Subsection 1 of NAC 389.800)

CERTIFICATE OF SKILL ATTAINMENT

Each student who completes a course of study must be awarded a certificate which states that they have attained specific skills in the industry being studied and meets the following criteria: A student must maintain a 3.0 grade point average in their approved course of study, pass the Workplace Readiness Skills Assessment, and pass the end-of-program technical assessment. (Subsection 4 of NAC 389.800)

CTE ENDORSEMENT ON A HIGH SCHOOL DIPLOMA

A student qualifies for a CTE endorsement on their high school diploma after successfully completing the following criteria: 1) successful completion of a CTE course of study in a program area, 2) successful completion of academic requirements governing receipt of a standard diploma, and 3) meet all requirements for the issuance of the Certificate of Skill Attainment. (NAC 389.815)

CTE COLLEGE CREDIT

CTE College Credit is awarded to students based on articulation agreements established by each college for the CTE program, where the colleges will determine the credit value of a full high school CTE program based on course alignment. An articulation agreement will be established for each CTE program designating the number of articulated credits each college will award to students who complete the program.

CTE College Credit is awarded to students who: (1) complete the CTE course sequence with a grade-point average of 3.0 or higher; (2) pass the state end-of-program technical assessment for the program; and (3) pass the Workplace Readiness Assessment for employability skills.

Pre-existing articulation agreements will be recognized until new agreements are established according to current state policy and the criteria shown above.

Please refer to the local high school’s course catalog or contact the local high school counselor for more information. (Paragraph (b) of Subsection 3 of NAC 389.800)

ACADEMIC CREDIT FOR CTE COURSEWORK

Career and technical education courses meet the credit requirements for high school graduation (1 unit of arts and humanities or career and technical education). Some career and technical education courses meet academic credit for high school graduation. Please refer to the local high school’s course catalog or contact the local high school counselor for more information. (NAC 389.672)

CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS

COURSE TITLE:	Furniture and Cabinetmaking I
ABBR. NAME:	FURN CABINET I
CREDITS:	1
LEVEL:	L1
CIP CODE:	48.0702
PREREQUISITE:	None
CTSO:	SkillsUSA

COURSE DESCRIPTION

This course will introduce the beginning furniture and cabinetmaking student to the various stages of construction and assembly of wood products and related materials. This course is intended to provide students with the basic knowledge and skills necessary to design, construct, and finish furniture and/or cabinets in the woodworking industry. Through the course activities the student will gain an understanding of safety procedures, machine operation, and industrial applications. The appropriate use of technology and industry-standard equipment is an integral part of this course.

TECHNICAL STANDARDS

CONTENT STANDARD 1.0 : IDENTIFY LAB ORGANIZATION AND SAFETY PROCEDURES

Performance Standard 1.1 : Demonstrate General Lab Safety Rules and Procedures

Performance Indicators : 1.1.1-1.1.19

Performance Standard 1.2 : Identify and Utilize Hand Tools

Performance Indicators : 1.2.1-1.2.5

Performance Standard 1.3 : Identify and Utilize Power Tools and Equipment

Performance Indicators : 1.3.1-1.3.5

CONTENT STANDARD 2.0 : APPLY FUNDAMENTAL DESIGN TECHNIQUES

Performance Standard 2.1 : Identify Elements of Design

Performance Indicators : 2.1.4, 2.1.7-2.1.8

Performance Standard 2.2 : Demonstrate Print Reading Techniques

Performance Indicators : 2.2.1-2.2.5

Performance Standard 2.3 : Demonstrate Measures and Scaling Techniques

Performance Indicators : 2.3.1-2.3.4, 2.3.6

Performance Standard 2.4 : Demonstrate Freehand Technical Sketching Techniques

Performance Indicators : 2.4.1, 2.4.4

Performance Standard 2.5 : Demonstrate and Apply Mathematical Concepts

Performance Indicators : 2.5.1-2.5.2

CONTENT STANDARD 3.0 : IDENTIFY MATERIAL PROPERTIES AND HARDWARE

Performance Standard 3.2 : Identify Fasteners and Methods

Performance Indicators : 3.2.1

Performance Standard 3.3 : Identify Adhesives and Methods

Performance Indicators : 3.3.1, 3.3.5

Performance Standard 3.4 : Identify and Utilize Hardware

Performance Indicators : 3.4.1

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CONTENT STANDARD 4.0 : IDENTIFY AND APPLY MANUFACTURING PROCESSES

Performance Standard 4.1 : Identify Manufacturing Processes

Performance Indicators : 4.1.1

Performance Standard 4.2 : Utilize Layout Principles and Practices

Performance Indicators : 4.2.1-4.2.5

Performance Standard 4.3 : Utilize Milling Operations

Performance Indicators : 4.3.3

Performance Standard 4.5 : Utilize Joinery Techniques

Performance Indicators : 4.5.1, 4.5.5

Performance Standard 4.6 : Utilize Sanding Processes and Techniques

Performance Indicators : 4.6.1-4.6.2, 4.6.6

Performance Standard 4.7 : Demonstrate Assembly Procedures

Performance Indicators : 4.7.1, 4.7.9

Performance Standard 4.8 : Demonstrate Finishing Procedures

Performance Indicators : 4.8.1, 4.8.4-4.8.5

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS**CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening

Mathematics: Mathematical Practices
Algebra – Reasoning with Equations and Inequalities

Science: Nature of Science

* Refer to the Furniture and Cabinetmaking Standards for alignment by performance indicator

**CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS**

COURSE TITLE:	Furniture and Cabinetmaking II
ABBR. NAME:	FURN CABINET II
CREDITS:	1
LEVEL:	L2
CIP CODE:	48.0702
PREREQUISITE:	Furniture and Cabinetmaking I
CTSO:	SkillsUSA

COURSE DESCRIPTION

This course is a continuation of Furniture and Cabinetmaking I. This course provides intermediate furniture and cabinetmaking student with the necessary knowledge and skills to pursue employment in related industries. This course will increase knowledge gained in Furniture and Cabinetmaking I. Laboratory activities will include advanced processes using tools and equipment currently being used by the industry. The appropriate use of technology and industry-standard equipment is an integral part of this course.

TECHNICAL STANDARDS

CONTENT STANDARD 2.0 : APPLY FUNDAMENTAL DESIGN TECHNIQUES

Performance Standard 2.1 : Identify Elements of Design

Performance Indicators : 2.1.1-2.1.3, 2.1.5-2.1.6, 2.1.9

Performance Standard 2.2 : Demonstrate Print Reading Techniques

Performance Indicators : 2.2.6-2.2.7

Performance Standard 2.3 : Demonstrate Measures and Scaling Techniques

Performance Indicators : 2.3.5, 2.3.7

Performance Standard 2.4 : Demonstrate Freehand Technical Sketching Techniques

Performance Indicators : 2.4.2

Performance Standard 2.5 : Demonstrate and Apply Mathematical Concepts

Performance Indicators : 2.5.3, 2.5.5

CONTENT STANDARD 3.0 : IDENTIFY MATERIAL PROPERTIES AND HARDWARE

Performance Standard 3.1 : Identify Materials and Their Properties

Performance Indicators : 3.1.1-3.1.2, 3.1.7

Performance Standard 3.2 : Identify Fasteners and Methods

Performance Indicators : 3.2.2-3.2.3

Performance Standard 3.3 : Identify Adhesives and Methods

Performance Indicators : 3.3.2-3.3.3

Performance Standard 3.4 : Identify and Utilize Hardware

Performance Indicators : 3.4.2-3.4.3

CONTENT STANDARD 4.0 : IDENTIFY AND APPLY MANUFACTURING PROCESSES

Performance Standard 4.3 : Utilize Milling Operations

Performance Indicators : 4.3.1-4.3.2, 4.3.4-4.3.5

Performance Standard 4.5 : Utilize Joinery Techniques

Performance Indicators : 4.5.2-4.5.3

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Performance Standard 4.6 : Utilize Sanding Processes and Techniques

Performance Indicators : 4.6.3-4.6.5

Performance Standard 4.7 : Demonstrate Assembly Procedures

Performance Indicators : 4.7.2-4.7.3, 4.7.7-4.7.8, 4.7.10

Performance Standard 4.8 : Demonstrate Finishing Procedures

Performance Indicators : 4.8.2

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS

CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening

Mathematics: Mathematical Practices
Algebra – Reasoning with Equations and Inequalities

* Refer to the Furniture and Cabinetmaking Standards for alignment by performance indicator

CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS

COURSE TITLE:	Furniture and Cabinetmaking III
ABBR. NAME:	FURN CABINET III
CREDITS:	1
LEVEL:	L3C
CIP CODE:	48.0702
PREREQUISITE:	Furniture and Cabinetmaking II
PROGRAM ASSESSMENTS:	FURNITURE AND CABINETMAKING WORKPLACE READINESS SKILLS
CTSO:	SkillsUSA

COURSE DESCRIPTION

This course is a continuation of Furniture and Cabinetmaking II. This course provides advanced furniture and cabinetmaking students with knowledge and skills in finish carpentry and cabinetmaking for construction applications. Through hands-on projects, students develop technical skills that are used throughout the construction industry including the software and hardware components of computer numerical-controlled (CNC) equipment. The appropriate use of technology and industry-standard equipment is an integral part of this course. Upon successful completion of this course, students will have acquired entry-level skills for employment and be prepared for postsecondary education.

TECHNICAL STANDARDS

CONTENT STANDARD 2.0 : APPLY FUNDAMENTAL DESIGN TECHNIQUES

Performance Standard 2.1 : Identify Elements of Design

Performance Indicators : 2.1.10

Performance Standard 2.4 : Demonstrate Freehand Technical Sketching Techniques

Performance Indicators : 2.4.3

Performance Standard 2.5 : Demonstrate and Apply Mathematical Concepts

Performance Indicators : 2.5.4, 2.5.6

CONTENT STANDARD 3.0 : IDENTIFY MATERIAL PROPERTIES AND HARDWARE

Performance Standard 3.1 : Identify Materials and Their Properties

Performance Indicators : 3.1.3-3.1.6, 3.1.8

Performance Standard 3.3 : Identify Adhesives and Methods

Performance Indicators : 3.3.4

CONTENT STANDARD 4.0 : IDENTIFY AND APPLY MANUFACTURING PROCESSES

Performance Standard 4.1 : Identify Manufacturing Processes

Performance Indicators : 4.1.2-4.1.6

Performance Standard 4.4 : Demonstrate Computer Numeric Control (CNC) Procedures

Performance Indicators : 4.4.1-4.4.7

Performance Standard 4.5 : Utilize Joinery Techniques

Performance Indicators : 4.5.4

Performance Standard 4.7 : Demonstrate Assembly Procedures

Performance Indicators : 4.7.4-4.7.6, 4.7.11-4.7.12

Performance Standard 4.8 : Demonstrate Finishing Procedures

Performance Indicators : 4.8.3

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS**CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening

Mathematics: Mathematical Practices
Algebra – Reasoning with Equations and Inequalities

Science: Nature of Science
Life Science
Earth and Space

* Refer to the Furniture and Cabinetmaking Standards for alignment by performance indicator

COMPLEMENTARY COURSE(S):

Programs that utilize the complementary courses can include the following courses. The Advanced Studies course allows for additional study through investigation and in-depth research.

COURSE TITLE:	Furniture and Cabinetmaking Advanced Studies
ABBR. NAME:	FURN CABINET AS
CREDITS:	1
LEVEL:	AS
CIP CODE:	48.0702
PREREQUISITE:	Furniture and Cabinetmaking III
CTSO:	SkillsUSA

COURSE DESCRIPTION

This course is offered to students who have achieved all content standards in a program whose desire is to pursue advanced study through investigation and in-depth research. Students are expected to work independently or in a team and consult with their supervising teacher for guidance. The supervising teacher will give directions, monitor, and evaluate the students' topic of study. Coursework may include various work-based learning experiences such as internships and job shadowing, involvement in a school-based enterprise, completion of a capstone project, and/or portfolio development. This course may be repeated for additional instruction and credit.

TECHNICAL STANDARDS

Students have achieved all program content standards and will pursue advanced study through investigation and in-depth research.

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS

Students have achieved all program content standards and will pursue advanced study through investigation and in-depth research.

SAMPLE TOPICS

- Complete a capstone project
- Compete in an individual/team competition
- Explore postsecondary and career opportunities
- Research and present a core furniture and cabinetmaking instructional topic